



IN THE UNITED STATES PATENT AND
TRADEMARK OFFICE

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Applicant: William Possidento
Title: TURNING TABLES: CHEMICAL PERIODIC CHART PUZZLE AND
TEACHING DEVICE
Group Art Unit: 3712

Hon. Commissioner of
Patents and Trademarks
Arlington, VA. 22202

BRIEF ON APPEAL

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I. STATEMENT OF INTEREST.

The real party in interest is that party identified in the caption of the brief, namely William Possidento, applicant.

II. RELATED APPEALS AND INTERFERENCES.

There are no other related appeals or interferences that relate to this case and known to the applicant's legal representative which will have a direct effect or be directly affected by or have a bearing on the Board's decision in this appeal.

III STATUS OF CLAIMS.

Applicant's claims 5-8 have been finally rejected by examiner's office action dated 11/27/02/

IV. STATUS OF AMENDMENTS AFTER FINAL.

There are no amendments after final.

V. SUMMARY OF THE INVENTION.

A two part teaching apparatus comprises a first part puzzle board that can hold the second part cubic teaching elements. The teaching elements are cubic shapes that have information pertaining to the each chemical element upon each block. Furthermore, claim 5 recites a first part puzzle board "having an outline shape reflective of [the] periodic chart" Note also that claim 5 recites that each block of the second part, contains information pertaining to a chemical element of the periodic chart. See fig. 1 of the application for further elaboration of the two part teaching apparatus.

VI. ISSUES FOR REVIEW.

Whether claims 5-8 are obvious in light of the teachings in the patent to Gaines (US pat. no. 85,299) combined with the Midgley patent reference. Both patents are of record in the case.

Namely whether it would be obvious in light of the teachings of Gaines to modify the wall chart of Midgley in order to produce the applicant's two part invention: one part being a set of cubes having chemical information on each cube that pertains to one chemical element so that the set of chemical elements may be arranged upon another part of the invention that is a board of a shape that reflects the periodic table of elements. The purpose being of course to represent the chemical elements of the periodic table in the proper order so that the table may be better understood.

VII. GROUPING OF CLAIMS.

Claim 5 is an independent claim that recites the two part apparatus that is the applicants invention: a puzzle board and a plurality of cubes that fit on the puzzle board.

Claim 6 does not stand or fall with claim 5 as a separate argument re: the patentability of such claims is made in sections D and E of the argument.

Claim 6 depends from claim 5 and recites certain sub sections of the puzzle board having various configurations in order to depict various sections of the periodic chart. Claim 7 depends on claim 6 and recites the additional element of information pertaining to an element to be on that cube. Claim 8 depends on claim 7 and further describes that information as electronic configuration information.

VIII ARGUMENT.

A. THERE IS NO TEACHING IN THE GAINES PATENT THAT SUGGESTS THAT IT WOULD BE PREFERABLE OR DESIRABLE TO MODIFY THE WALL CHART OF MIDGLEY INTO BLOCK SHAPES FOR EACH ELEMENT AND A PUZZLE BOARD OF SHAPE REFLECTING THE PERIODIC TABLE OF CHEMICAL ELEMENTS.

The claims have been rejected under section 103 on the basis that the teachings in the Gaines patent that can be used to modify the Midgley apparatus and so produce the applicant's two part apparatus having cubic blocks with information pertaining to the chemical elements in connection with a puzzle board having a shape that reflects the periodic table of elements.

The Gaines patent was issued in 1868, when the science of modern chemistry was in its infancy. Clearly the periodic chart had not been heard of, and in fact, there is no teaching in this patent that suggests that the individual chemical elements may be arranged into a chart form, so that the various characteristics of related elements can be compared to one another.

For example, in the modern day periodic table, one column of elements in the periodic chart comprises the halogens, oxygen, and related chemical elements are arranged in the same column of the table and one merely has to go down a column of the chart in order to determine which elements belong to the halogens. Every student of chemistry is aware of this property of the periodic chart.

Such properties and relationships of the various elements that are reflected by the periodic table were not known in Gaines's time and thus, there can be no suggestion in this

prior art patent of arranging of separate and distinct cubic shapes, representing the chemical elements into a periodic chart, or any other chart for that matter. Such charts simply did not exist in Gaines' day.

Gaines does not teach the idea of a one to one correspondence between a cubic piece and an element in the periodic table. Gaines has no interest in making one cubic piece for each element, such a one to one correspondence would violate the very teachings of Gaines and teach away from the purpose of that invention. See the example given in col. 2 lines 26 et seq. of Gaines. It is the express purpose of that patent to provide multiple representations of the same element so that molecules consisting of repeated versions of an element can be made by the student.

To conclude that the teachings of Gaines suggest establishing a one to one correspondence between an element and a cubic piece would violate the teachings of Gaines and contradict the very purpose of that patent. A rejection based on such reasoning is improper under section 103 analysis.

It is clear from his patent that Gaines has a plurality of cubes, and such plurality of cubes representing one element (like oxygen) are placed into one compartment of the box. See for example on col. 1, line 46, "Oxygen is represented by CUBES..." (emphasis on the plural of cube has been added).

Thus there is no teaching in the Gaines patent that suggests it would be preferable or desirable to make one cube for each element and to arrange these elements onto a board that forms the elements into the shape of the periodic table.

Moreover, the only thing that can be said to be taught by Gaines is that it is possible to make cubic shapes to represent the chemical elements. Reading Gaines in light of

Midgley would not lead one to conclude that it would be preferable or desirable to take those cubes of Gaines and arrange them into a periodic table, there is simply no reason to think that this would be a preferable or desirable condition for the cubes of Gaines.

Again to arrange the cubes of Gaines into a periodic chart would violate the express teachings of Gaines. Since the purpose of Gaines is to allow students to take the cubes representing elements, out of the compartments and arrange them into molecules, it would violate the purpose of Gaines to mandate that these cubes be arranged into a periodic table.

It is clear from this example and the other examples in col. 2 of Gaines, that Gaines envisions a plurality of blocks of one particular element, in order that several such blocks may be reached for and then arranged into molecules. Thus the purpose of Gaines is to provide for sets of cubes, each set of cubes representing one particular element. His purpose is to provide multiple elements so that the elements may be arranged into molecules of more than one element.

The applicant's purpose, by contrast does not in any way intend to provide multiple sets of an element. His invention specifically provides that one and only cube may represent a given element. This is in keeping with the organization of the periodic table that has a specific position for each chemical element.

Such an arrangement clearly teaches away from the idea of having a plurality of blocks each representing on chemical element so that such elements may be formed into a chart like a periodic table.

B. THERE IS NO SUGGESTION IN THE PRIOR ART THAT IT WOULD BE PREFERABLE OR DESIRABLE TO MODIFY THE COMPARTMENTS OF GAINES INTO THE SHAPE AND SIZE REQUIRED FOR A PERIODIC TABLE.

It is clear that the purpose of the compartments in Gaines is not to arrange the elements into any sort of pattern based on their properties but rather in order to enable the student to easily gather, say the oxygen elements, in order to arrange them into a molecule.

See also, col 1, line 53 of Gaines:, "I provide a box, the bottom which is divided, by means of strips or cleats, into as many separate apartments as there are different varieties of cubes to be used in teaching."

It is clear that Gaines envisions that his box should consist of compartments that each hold a plurality of one single type of element (the "different varieties of cubes") so that students may reach into a certain compartment and pull out say a pair of elements marked "8" in order that they can use a couple of oxygen's to form the molecule of Carbonate of Lime. See the example given in col. 2, line 31-36 of Gaines.

Therefore to conclude that Gaines suggests arranging the cubic shapes onto a puzzle board that groups the elements according to the periodic table would contradict the teachings of Gaines. The express purpose of the compartments in Gaines is to enable storage of multiple versions of one element. This is so the student can readily access this element. There is no teaching in Gaines that his storage compartments may be used to group cubes representing one element into a periodic table. Such reasoning is being supplied entirely by the examiner is not proper under section 103 analysis.

Again, even by reading the Midgley patent there is no reason to conclude that Midgley would be benefit or find it desirable to substitute a puzzle board in the shape or conformation of a periodic table. There is simply nothing in the prior art to suggest that there would be any benefit to making compartments to hold cubic pieces into the shape of the periodic table.

C. EVEN IF THE TEACHINGS OF GAINES WERE AVAILABLE TO MODIFY THE MIDGLEY INVENTION, SUCH A COMBINATION WOULD STILL NOT PRODUCE THE APPLICANT'S INVENTION.

The teachings of Gaines provide for a plurality of cubes, a number of which are identical to one another, to be stored in compartments in his invention. Moreover, as seen in fig. 1 of Gaines, each compartment of this invention is used to hold a set of blocks pertaining to one chemical element.

As can be seen in fig. 1, there are four "8" cubes resting in the upper left compartment of the case. There are 2 more cubes marked "12" and resting in a compartment on the right hand side of the case. It is clear from a reading of Gaines that these cubes with the same numbers represent one chemical element. And that the compartments of Gaines are used for the purpose of storing one set of chemical blocks.

See col 1, line 53 of Gaines:, "I provide a box, the bottom of which is divided, by means of strips or cleats, into as many separate apartments as there are different varieties of cubes to be used in teaching."

It is clear that compartments of Gaines are designed for storing similar cubic elements, namely cubes that represent the same element such as the four oxygen ("8") cubes that we seen in fig. 1 of Gaines. And as such there is no teaching in

the prior art that would suggest to one skilled in the art that he can modify the Midgley patent in order to include a second part, puzzle board, that is shaped and sized in order to accommodate the cubic pieces into the shape of the periodic chart.

Moreover, even if one were able to glean from the teachings of Gaines that a puzzle board of periodic shape, such as the applicant's can be made, the hypothetical invention would still not function like the applicant's since the cubic shapes of Gaines are all of different size.

The express purpose of Gaines is to make the cubes of dissimilar size so as to teach the student the relative weights of the chemical elements. See col. 1, line 42:

The cubes representing carbon, I make six times larger than those representing hydrogen, to indicate to the eye that it is six times heavier, and I place the figure 6 on each face."

It is obvious that the cubes of Gaines cannot function in the applicant's invention since it is necessary that the cubes of the applicant's invention must be all of the same size so that all the elements may fit in the periodic table that is defined by the contours of the first part, puzzle board of the invention.

D. EVEN IF IT CAN BE SAID THAT THE PUZZLE BOARD AS CLAIMED IN CLAIM 5 OF THE APPLICANT'S INVENTION IS OBVIOUS IN LIGHT OF GAINES AND MIDGLEY, THE SPECIFIC SHAPED ARRAYS THAT ARE DESCRIBED IN DETAIL IN CLAIM 6 ARE NOT SHOWN OR SUGGESTED BY THE PRIOR ART.

Again, the apparatus of Gaines is not designed with the periodic table in mind. Such a chart was not known in 1868,

nor were the relationships among the elements to one another known in the way that they are depicted in the modern day periodic table.

As recited by the applicant in claim 6, his puzzle board contains a specific shapes of arrays, namely a 3x18 section, a 2x2 section and a 2x6 section in order to reflect those particular patterns that are found in the modern day periodic table of the elements.

If one skilled in the art were to use the Gaines patent as a basis for creating a two part cubic shape and puzzle board invention, he would have to look at the Gaines patent in order to determine the shape and size of the various compartments. As such there is nothing in the Gaines patent that would suggest that the compartments should be of size and shape to reflect the arrangement of the chemical elements in the modern day periodic table.

Again, the compartments of Gaines are designed for the express purpose of storing the cubes so students can access them and thus their shape and function is based upon storage considerations and not upon holding the elements into an array that reflects the shape of the periodic table. Thus there is no teaching in the Gaines patent that can be said to teach that it is preferable or desirable that the compartments to hold the cubes be of shape reflecting the periodic chart.

The compartments of Gaines are for storage and not to represent the shape of various sections of the periodic table. Thus there is no suggestion in the prior art that teaches that it is preferable or desirable to modify the compartments of Gaines into the specific shaped arrays claimed by the applicant in claim 6 that reflect various sections of the periodic table of chemical elements.

E. BECAUSE THE CUBES OF GAINES ARE OF DISSIMILAR SIZE AND BECAUSE THERE ARE A PLURALITY OF EACH ELEMENT, IT WOULD BE IMPOSSIBLE TO PRODUCE THE APPLICANT'S INVENTION FROM THE PROPOSED COMBINATION OF REFERENCES.

Even if one were to somehow glean from the Midgley patent that the shape of the periodic table could be used for the compartments of Gaines, it would still be impossible to combine the prior art references into a hypothetical invention that would read on the applicant's invention. For one thing, the cubes of Gaines are not of similar size, thus it would be impossible to glean from the prior art how one can read the Gaines patent and combine it with the Midgley patent and still produce a puzzle board that would read on the applicant's claims 5 and/or 6.

Gaines expressly mandates that the size of each cube should be different to reflect different atomic weights, See col 1, line 42 et seq. There is no other prior art to draw upon that suggests what size the cubic shapes should be. Midgley of course cannot provide it, since his patent has to do with a wall chart and does not concern itself with cubic shapes. Thus, the only prior art that would supply any insight into the size of the cubic shapes is that of Gaines and he expressly mandates that the shapes must be different.

Such a hypothetical invention, based upon the proposed combination would thus be impossible to function, since the dissimilar cubic shapes of Gaines could not fit into a normal looking periodic table.

Since Gaines uses cubes of dissimilar size, it would be impossible to use the teachings of Gaines to modify the wall chart of Midgley and produce a puzzle board that is able to hold the cubic pieces in the manner of a periodic table. The

periodic table of the applicant's invention must have cubes having very nearly the same size as one another in order to that the puzzle board will be of the shape consistent with the periodic table.

For another thing, Gaines uses multiple cubes of one element. Again, see the discussion of Gaines above. Having modified the wall chart of Midgley with the cubes of Gaines there is no teaching in the prior art that shows that the cubic elements need to be in a one to one correspondence with the chemical elements of the periodic table.

IX. SUMMARY AND RELIEF REQUESTED:

It is requested that the outstanding rejections of claims on the merits be overcome and the case be remanded to the examiner for a Notice of Allowance and/or further proceedings in accordance with such decision.

X. Appendix: Pending claims:

Claims 5-8 were added by amendment of 7/23/02:

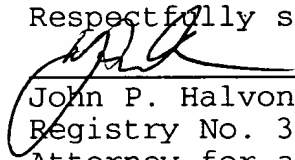
5. A two part teaching puzzle apparatus based upon the periodic chart of chemical elements that provides an array of rows and columns of said chemical elements; where the location of each element in the array is based upon its chemical properties, the apparatus comprising: a first part puzzle board having a top edge, a bottom edge and two side edges, said edges having an outline shape reflective of said periodic chart, a second part comprising a plurality of cubic shaped pieces, each piece having six faces, each of said pieces corresponding to a chemical element in the periodic table and having information on at least one of said faces of said cubic shape pertaining to the chemical name of a given said element, said puzzle board having shape for accommodating an array of said cubes that reflects the configuration of said periodic chart.

6. The apparatus of claim 5 wherein said puzzle board comprises a main section having left and right side edges and top and bottom edges, said main section having a shape for accommodating a 3 x 18 array of said cubic shaped pieces, and a first upper section in connection with said top edge of said main section, said upper section having a left edge that is co-linear with said left side edge, said first upper section having a shape for accommodating a 2 x 2 array of said cubic shaped pieces, and a second upper section in connection with said top edge of said main section, said second upper section in connection with said top edge of said main section and having a right edge that is co-linear with said right edge of said main section, said second upper section having a shape for accommodating a 2 x 6 array of said cubic shaped pieces.

7. The apparatus of claim 6 wherein each of said cubes contains information pertaining to a chemical symbol of one of said chemical elements.

8. The apparatus of claim 7 wherein each of said cubes contains information pertaining to an electronic configuration of one of said chemical elements.

Respectfully submitted,



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CERTIFICATE OF MAILING

I certify that this APPLICANTS BRIEF ON APPEAL is being sent by first class mail addressed to: Commissioner of Patents, PO Box 1450; Alexandria VA. 22313-1450, on this 26th day of July 2003.



John P. Halvonik